

Source Water Assessment Program (SWAP) Report

For

NEC TECHNOLOGIES, INC.



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
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Table 1: Public Water System (PWS) Information

<i>PWS Address</i>	1414 MASSACHUSETTS AVE.
<i>City/Town</i>	BOXBOROUGH
<i>PWS ID Number</i>	2037017
<i>Local Contact</i>	Deborah Bray
<i>Phone Number</i>	(978) 486-3395

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2037017-01G	297	858	High
Well #2	2037017-02G	297	858	High
Well #3	2037017-03G	260	666	High

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas
5. Appendix

1. Description of the Water System

The NEC water supply consists of three bedrock wells. Well #1 (01G) is manifolded with Well #2 (02G), which is located in a pit north of the building. Well #3 (03G) has its own line into the building. Wells #1 and #2 have Zone I protective radii of 297 feet and Interim Wellhead Protection Areas (IWPA) of 858 feet. Well #3 has a Zone I protective radii of 260 feet and an Interim Wellhead Protection Area (IWPA) of 666 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The wells serving the facility have no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate activities in Zone Is;**
2. **An underground storage tank (UST) with gasoline;**
3. **Presence of a contamination site within the IWPA ; and**
4. **Landscaping and lawncare.**

The overall ranking of susceptibility to contamination for the well is High, based on the presence of at least one high threat land use or activity in the IWPA.

1. **Zone Is** - Currently, the wells do not meet DEP's restrictions, which only allow water supply related activities in Zone I. The Zone Is contain a portion of Route 117 (roadway), parking areas, a portion of the on-site building, and a portion of the access road. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Do not use or store pesticides, fertilizers or road salt within Zone I.
- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.
- ✓ If the facility intends to continue utilizing the access road and parking in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

2. **Underground Storage Tanks (UST)** – There are USTs with gasoline at the gas station located within the IWPA of Wells #1, #2 & #3. If managed improperly, USTs can be a potential contaminant source due to leaks or spills of the chemicals they store.

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Commercial	Parking lot, driveways & roads	All	All	Moderate	Limit road salt usage and provide drainage away from wells
	Fuel Storage Below Ground	No	All	High	Heating oil tank
	Landscaping and lawncare	All	All	Moderate	Fertilizer & pesticide use
	21E site	No	Yes	---	21E USTs & Service station

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Recommendations:

- ✓ Work with the gas station to encourage them to comply with all provisions of the regulations regarding USTs. Consult with the local fire department for any additional local code requirements regarding USTs.
- ✓ Any modifications to the USTs must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements.

3. **Presence of a contamination site within the IWPA** The IWPA contains a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 2-0026. The referenced site is a gas station with underground storage tanks (USTs) (see #2 above). The site's responsible party is cleaning up the site and monitoring groundwater quality. See the attached map and Appendix 1 for more information.

4. **Landscaping and lawncare** - Fertilizer is applied to the lawn that is located within the Zone I and IWPA. Fertilizers and pesticides, if improperly applied or stored, can be potential sources of contamination to the water supply.

Recommendations:

- ✓ Do not use fertilizers or pesticides in the Zone I.
- ✓ Use best management practices when applying fertilizer in the IWPA.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

NEC Technologies should review and adopt the following recommendations at the facility:

Zone I:

- ✓
- ✓ If it's not feasible to purchase privately owned land within the Zone I at

this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers and certified operator.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.

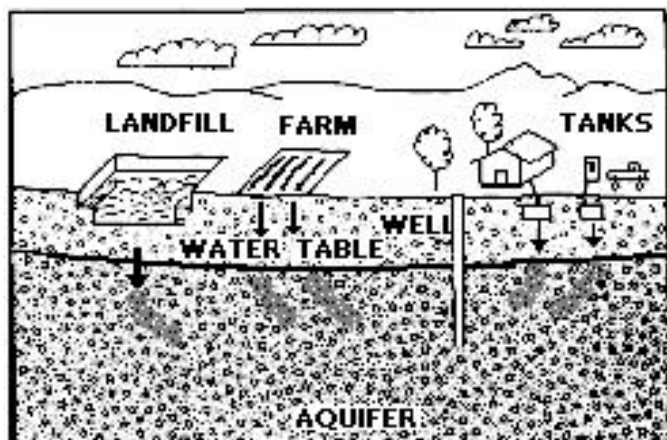


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property

Planning:

- ✓ Work with local officials in Boxborough to include the facility's IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/ including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Source Protection Sign Order Form

5. Appendix

1. Table of DEP Regulated Chapter 21E Hazardous Materials Release Sites within the Water Supply Protection Areas

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

APPENDIX 1 – Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas

DEP's datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP's Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP's Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state's OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
2-0026	1425 Massachusetts Ave.	Boxborough	Oil

For more location information, please see the attached map. The map lists the release sites by RTN.